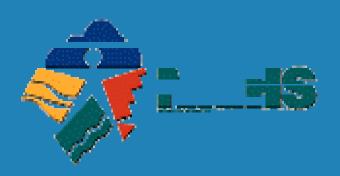
NIEHS — EPA Central Utility Complex Overview





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Lead group responsible for NIEHS facilities management services, including 0&M of central utilities, site security, grounds maintenance, janitorial, and maintenance & repair of facility-related equipment

Environmental Health Science Center

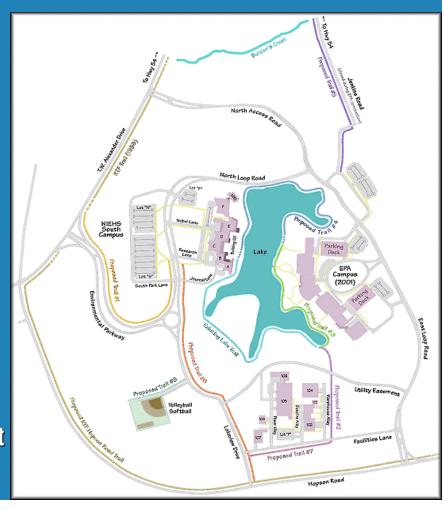
- 509 acre site donated to the federal government in 1965
- National Institute of Environmental Health Sciences (NIEHS)
 - Established in 1966
 - Mission: Understand the environmental causes of human illness and dysfunction
 - Elevated to Institute status within the NIH in 1969
 - Home of the National Toxicology Program
- Environmental Protection Agency
 - a.k.a. National Center for Air Pollution Control (late 1960s)



Master Plan for Site Utilization

- Completed in 1971 with joint oversight of NIEHS and EPA
- Resulted in six buildable sites ("Centers")
 - NIEHS
 - ~1200 persons
 - ~1,000,000 GSF
 - EPA (2)
 - ~2000 persons
 - ~1,000,000 GSF
 - Two additional "Centers"
 - Central Utility (Support Services) Complex

Proposed a Central Utility Plant (CUP) providing heating and cooling to site



Central Utility Complex (~165,000 GSF)

- Central Utility Plant
 - 200 MMBH (output) high temperature hot water system capacity
 - 19,000 tons chilled water system capacity
- NIEHS Warehouse
- Central Refuse (Incinerator) Building
- NIEHS Engineering Building
- NIEHS Chemical Storage Building



- Primary Switchhouse
 - Dual 30/40/50 MVA transformers
- Waste Handling Facility (1998)

Central Utility Plant Output Utilities

High Temperature Hot Water (HTHW)

- 400 °F, 315 PSIG
- Plant Capacity
 - 200 MMBH
 - Five 40 MMBH Output HTHW Generators
 - Natural Gas, with Fuel Oil backup



Central Utility Plant Output Utilities

Chilled Water (CHW)

- Plant Capacity
 - 19,000 tons
- Chillers
 - Four 3500 ton centrifugal chillers
 - Two 2500 ton centrifugal chillers
- Cooling Towers
 - One 8500 ton (3 cell) tower
 - One 10,500 ton (4 cell) tower





Site Utilities Piping

Initial Concept

Complete loop of HTHW & CHW around the lake for increased reliability; ability to isolate a section of piping

- NIEHS side
 - Initial installation 1981
 - Extended to NW corner of lake in 1996
- EPA side
 - Value Engineering deleted portion across the dam (\$4.6 million savings)
 - Section to National Computer Center deleted for additional savings
- Provisions for Completion
 - Valve Pit No. 6
 - CUP pumps sized for worst case line break scenario



Other Central Utility Complex Expansions to Accommodate EPA Additions to Site

Electrical Substation

- Replacement of primary transformers
 - Dual 20 MVA to 50 MVA transformers
- Additions to switchgear lineup to accommodate new feeders

Waste Handling Facility Addition

- Work group from NIEHS & EPA
- NIEHS managed design and construction, and EPA provide funding through Interagency Agreement
- Addition completed in 2002

Incinerator

- Work group from NIEHS and EPA reviewed waste management
- Removed general purpose incinerators and installed new pathological incinerator
- NIEHS managed design and construction
- Permitted in early 2002

Central Plant Operations at Joint Occupancy

- Central Utility Plant
 - Transferred to NIEHS
 - NIEHS serves as utility company to EPA
- Central Utility Plant Transition Workgroup
 - Utilities
 - Individual Agency's
 - Common Facilities
 - Central Plant Operation and Maintenance

Central Utility Plant Operations and Maintenance

- Interagency Agreement NIEHS provides 0&M of the CUP by contract, and EPA provides reimbursement to NIEHS
- Modified (and subsequently resolicited)
 contract for additional requirements
 - Economies of Scale
 - CUP 0&M costs split 50/50

Summary of the Environmental Health Science Center

- Began in 1965 with the donation of the 509 acre site
- Furthered in 1967-1971 with joint completion of the USPHS Research Park Master Plan
- Came together in early 1990s with EPA's planning for their Facility
 - Working with NIEHS during Program of Requirements
 - NIEHS participation in Architect-Engineer Selection
- EPA maintained NIEHS's involvement during design phase
 - NIEHS's input into EPA's site infrastructure and new and expanded common facilities
 - Reduction of costs through use of common facilities
- Funding and management of expansion of common facilities
 - Central Utility Plant
 - Waste Handling Facility
 - Incinerator
- Delivery of utilities
 - Central Plant Operation
 - Increased reliability through redundancy
 - Reduced costs through economies of scale
 - Payment of utilities

Questions

